

May 6–7, 2003

Hilton Crystal City at National Airport
Arlington, Virginia

A Symposium on Cooling Water Intake Technologies to Protect Aquatic Organisms

Sponsored by

U.S. EPA Office of Water
U.S. EPA Office of Research and Development
NOAA, National Marine Fisheries Service
U.S. Department of Energy
Electric Power Research Institute

In Cooperation With

Riverkeeper, Inc.
Utility Water Act Group
Atlantic States Marine Fisheries Commission



About the Symposium

The Symposium will draw professionals from federal, state, and tribal regulatory agencies; industry; environmental organizations; engineering consulting firms; science and research organizations; academia; and others concerned with mitigating harm to the aquatic environment by cooling water intake structures. During the two-day symposium, attendees will learn from 25 speakers and 12 poster presenters about the efficacy and costs of various technologies to mitigate impacts to aquatic organisms from cooling water intake structures.

Logistics

Location: The symposium will take place at the Hilton Crystal City at National Airport, 2399 Jefferson Davis Highway, Arlington, Virginia 22202. Transportation options and driving directions are available on EPA's web site at www.epa.gov/waterscience/316b/symposium/#transportation.

Registration Fee: Although there is no registration fee, attendance is limited to a first come, first serve basis.

Lodging: A block of rooms has been reserved at the Hilton Crystal City at National Airport. Rooms are \$169/night for single and double rooms, plus 9.75% sales tax. The government rate is \$150/night (must show ID). (Check-in time: 3:00 p.m.; Check-out time: 12:00 p.m.) To make room reservations, call (703) 418-6800, ext. 5799 and use the group name "EPA Cooling Water Intake Structure Workshop." ***The cut off date for the reserved block of rooms is April 11 2003.*** All reservations must be accompanied by a first night room deposit or guaranteed with a major credit card.

Area Attractions: Adjacent to Ronald Reagan Washington National Airport and just five minutes from downtown Washington D.C, the Hilton Crystal City is within easy reach of restaurants and local attractions. The hotel is located 3 blocks from the Crystal City Metro Station and 1 block from the entrance to the Crystal City Underground Mall and "restaurant row."

For More Information:

Scott Minamyer

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26 West Martin Luther King Drive
Cincinnati, OH 45268
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For Logistical Information:

Melissa Teal

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email: melissa.teal@tetratech-ffx.com

For more updated information visit the web at:
www.epa.gov/waterscience/316b/symposium

Agenda

Tuesday, May 6, 2003

8:10 – 8:15 **Opening Remarks**, Scott Minamyer, Environmental Scientist, U.S. EPA, Office of Research and Development

8:15 – 9:00 **Keynote Addresses**

8:15 – 8:30 G. Tracy Mehan, Assistant Administrator,
U.S. EPA Office of Water (Invited)

8:30 – 8:45 Alex Matthiessen, Executive Director,
Riverkeeper, Inc.

8:45 – 9:00 Charles Goodman, Senior Vice President,
Research and Environmental Affairs, Southern
Company

9:00 – 10:00 **Overview Presentations**

9:00 – 9:30 *An Overview of Fish Protection Technologies
and Cooling Water Intake Structure (CWIS)*,
Edward Taft and Thomas Cook, Alden
Research Laboratory, Inc.

9:30 – 10:00 *An Overview of Flow Reduction Technologies
for Reducing Aquatic Impacts at Cooling Water
Intake Structures*, Reed Super, Riverkeeper, Inc.

10:00 – 10:30 **Break**

10:30 – 12:00 **Session A: State-Level Issues**

10:30 – 11:00 Richard L. Wantuck, NOAA Fisheries,
Santa Rosa, California

11:00 – 11:30 Richard McLean, Director of Nuclear Programs,
Maryland Department of Natural Resources

11:30 – 12:00 Edward W. Radle, (retired) and Michael J.
Calaban, New York State DEC, Steam Electric
Unit

12:00 – 1:30 **Lunch**

1:30 – 3:00 **Session B: Flow Reduction**

- 1:30 – 1:50 *Retrofit of Closed-Cycle Cooling with Unit-Specific Mechanical Draft Wet Cooling Towers with By-Pass Capability: A Case Study*, Reed Super, Riverkeeper, Inc.
- 1:50 – 2:10 *Proposed Innovative Cooling System for Heat and Flow Reduction at the Brayton Point Power Station*, Thomas Englert, Lawler, Matusky and Skelly Engineers, LLP
- 2:10 – 2:30 *Design and Performance of Optimized Air-Cooled Condenser at Crockett Cogeneration Plant*, Bill Powers, Bill Powers, P.E.
- 2:30 – 2:50 *Evaluation of Variable Pumping Rates as a Means to Reduce Entrainment Mortalities*, John Young, ASA Analysis & Communications, Inc.
- 2:50 – 3:00 Q&A for Session B

3:00 – 3:30 **Break**

3:30 – 5:00 **Session C: Costs Associated with Flow Reduction**

- 3:30 – 3:50 *Cooling System Retrofit Costs*, John Maulbetsch, Maulbetsch Consulting
- 3:50 – 4:10 *Estimating Energy Penalties for Wet and Dry Cooling Systems at New Power Plants*, Wayne Micheletti, Wayne C. Micheletti, Inc.
- 4:10 – 4:30 *A Tool for Budgetary Estimation of Cooling Water Unit Costs Based on Flow*, Faysal Bekdash, SAIC
- 4:30 – 4:50 *Power Plant Repowering as a Strategy for Reducing Water Consumption at Existing Electric Generating Facilities*, David Schlissel, Synapse Energy Economics, Inc.
- 4:50 – 5:00 Q&A for Session C

6:00 – 8:00 **Poster and Mixer Session**

Conference participants are invited to convene for poster presentations and discussion. Over one dozen posters prepared by scientists and industry experts will be presented, covering a range of innovative technologies for reducing impingement and entrainment by cooling water intake structures. Topics will include the latest developments in screening technologies, behavioral barriers, aquatic filter barriers, velocity caps and more. A cash bar will be available.

Wednesday, May 7, 2003

8:15 – 8:20 **Opening Remarks**, Scott Minamyer, U.S. EPA, Office of Research and Development

8:20 – 9:30 **Session D-1: Screening and Other Fish Diversion/Deterrent Technologies**

8:20 – 8:40 *Fish Return System Efficacy and Monitoring Studies for JEA's Northside Generating Station*, Isabel C. Johnson, Golder Associates, Inc.

8:40 – 9:00 *Effectiveness, Operation and Maintenance, and Costs of a Barrier Net System for Impingement Reduction at the Chalk Point Generating Station*, David Bailey, Mirant

9:00 – 9:20 *Reductions in Impingement Mortality Resulting from Enhancements to Ristroph Traveling Screens at an Estuarine Cooling Water Intake Structure*, Kenneth Strait, PSEG Services Corporation

9:20 – 9:30 Q&A for Session D-1

9:30 – 10:00 **Break**

10:00 – 11:30 **Session D-2: Screening and Other Fish Diversion/Deterrent Technologies, cont'd**

10:00 – 10:20 *Development and Operation of Acoustic Fish Deterrent Systems at Estuarine Power Stations*, Andy Turnpenny, Fawley Aquatic Research

10:20 – 10:40 *Induced Sweeping Flows at CWIS for Reducing Fish Impingement*, Charles C. Coutant, Oak Ridge National Laboratory

10:40 – 11:00 *The Use of Angled Bar Racks and Louvers for Protecting Fish at Water Intakes*, Stephen Amaral, Alden Research Laboratory, Inc.

11:00 – 11:20 *A Review of Impingement Survival Studies at Steam-Electric Power Stations*, Steven Jinks, ASA Analysis & Communications, Inc.

11:20 – 11:30 Q&A for Session D-2

11:30 – 1:00 **Lunch**

1:00 – 2:50

**Session D-3: Screening and Other Fish
Diversion/Deterrent Technologies, cont'd**

- 1:00 – 1:20 *Optimal Slot-Width Selection for Wedge Wire Screens*, William Dey, ASA Analysis & Communications, Inc.
- 1:20 – 1:40 *Development of Filter Fabric Technology to Reduce Aquatic Impacts at Water Intake Structures*, Matthew Raffenberg, Lawler, Matusky, and Skelly Engineers, LLP
- 1:40 – 2:00 *Vulnerability of Biofouling of Filter Curtain Materials used for Entrainment Reduction*, Peter Henderson, Pisces Conservation Ltd. and University of Oxford
- 2:00 – 2:20 *Laboratory Evaluation of Wedgewire Screens for Protecting Fish at Cooling Water Intakes*, Stephen Amaral, Alden Research Laboratory, Inc.
- 2:20 – 2:40 *Selection and Design of Wedge Wire Screens and a Fixed-Panel Aquatic Filter Barrier System to Reduce Impingement and Entrainment at a Cooling Water Intake Structure*, Mark Strickland, PSEG Services Corporation
- 2:40 – 2:50 Q&A for Session D-3

- 2:50 – 3:15 Break**
- 3:15 – 4:15 Facilitated Open Discussion: *Identify Research Needs***
- 4:15 – 4:30 Wrap-up and Summary**
- 4:30 Adjourn Symposium**

Conference Planning Committee

Scott Minamyer, U.S. EPA Office of Research and Development, Chair
Ashley Allen, U.S. EPA Office of Water
David Bailey, Mirant Corporation and Utility Water Act Group
Thomas Bigford, NOAA, National Marine Fisheries Service
Thomas Feeley, DOE, National Energy Technology Laboratory
Robert Gross, DOE, National Energy Technology Laboratory
Lisa Kline, Atlantic States Marine Fisheries Commission
Deborah Nagle, U.S. EPA Office of Water
Martha Segall, U.S. EPA Office of Water
Carrie Selberg, Atlantic States Marine Fisheries Commission
Reed Super, Riverkeeper, Inc.
Tom Wall, U.S. EPA Office of Water
Kent Zammit, Electric Power Research Institute

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Symposium Registration

Register on-line at <http://www.epa.gov/waterscience/316b/symposium/>, or
use the Registration Form below.

This form may be photocopied. Please type or print clearly.

Name: _____

Title: _____

Company/Organization: _____

Address: _____

City/State/ZIP: _____

Telephone: _____

Fax: _____

E-mail: _____

Mail, fax, or e-mail the completed form to EPA's contractor:

Tetra Tech, Inc.

Attn: Melissa Teal

10306 Eaton Place, Suite 340

Fairfax, VA 22030

Tel: (703) 385-6000 x166

Fax: (703) 385-6007

E-mail: melissa.teal@tetrattech-ffx.com

Note:

Please make your hotel arrangements by April 11, 2003.



**United States
Environmental Protection
Agency**

National Risk Management
Research Laboratory
Cincinnati, OH 45268

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